```
PPPPPPPPPPPP        AAAAAAAAA        SSSSSSSSSSSS  RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
PPPPPPPPPPPP        AAAAAAAAA        SSSSSSSSSSSS  RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
PPPPPPPPPPPP        AAAAAAAAA        SSSSSSSSSSSS  RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
PPP         PPP  AAA         AAA  SSS              RRR         RRR        TTT        LLL
PPP         PPP  AAA         AAA  SSS              RRR         RRR        TTT        LLL
PPP         PPP  AAA         AAA  SSS              RRR         RRR        TTT        LLL
PPP         PPP  AAA         AAA  SSS              RRR         RRR        TTT        LLL
PPP         PPP  AAA         AAA  SSS              RRR         RRR        TTT        LLL
PPP         PPP  AAA         AAA  SSS              RRR         RRR        TTT        LLL
PPPPPPPPPPPP     AAA         AAA     SSSSSSSSS     RRRRRRRRRRRR           TTT        LLL
PPPPPPPPPPPP     AAA         AAA     SSSSSSSSS     RRRRRRRRRRRR           TTT        LLL
PPPPPPPPPPPP     AAA         AAA     SSSSSSSSS     RRRRRRRRRRRR           TTT        LLL
PPP              AAAAAAAAAAAAAAA              SSS  RRR   RRR              TTT        LLL
PPP              AAAAAAAAAAAAAAA              SSS  RRR   RRR              TTT        LLL
PPP              AAAAAAAAAAAAAAA              SSS  RRR   RRR              TTT        LLL
PPP              AAA         AAA              SSS  RRR      RRR           TTT        LLL
PPP              AAA         AAA              SSS  RRR      RRR           TTT        LLL
PPP              AAA         AAA              SSS  RRR      RRR           TTT        LLL
PPP              AAA         AAA  SSSSSSSSSSSS     RRR         RRR        TTT        LLLLLLLLLLLLLLL
PPP              AAA         AAA  SSSSSSSSSSSS     RRR         RRR        TTT        LLLLLLLLLLLLLLL
PPP              AAA         AAA  SSSSSSSSSSSS     RRR         RRR        TTT        LLLLLLLLLLLLLLL
```

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_$2

Sym
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```
**FILE**ID**PASEXPO                                    K 5



PPPPPPPP      AAAAAA      SSSSSSSS  EEEEEEEEEE  XX      XX  PPPPPPPP      OOOOOO
PPPPPPPP      AAAAAA      SSSSSSSS  EEEEEEEEEE  XX      XX  PPPPPPPP      OOOOOO
PP      PP  AA      AA  SS          EE          XX      XX  PP      PP  OO      OO
PP      PP  AA      AA  SS          EE          XX      XX  PP      PP  OO      OO
PP      PP  AA      AA  SS          EE            XX  XX    PP      PP  OO      OO
PP      PP  AA      AA  SS          EE            XX  XX    PP      PP  OO      OO
PPPPPPPP    AA      AA    SSSSSS    EEEEEEEE        XX      PPPPPPPP    OO      OO
PPPPPPPP    AA      AA    SSSSSS    EEEEEEEE        XX      PPPPPPPP    OO      OO
PP          AAAAAAAAAA          SS  EE            XX  XX    PP          OO      OO
PP          AAAAAAAAAA          SS  EE            XX  XX    PP          OO      OO
PP          AA      AA          SS  EE          XX      XX  PP          OO      OO     ....
PP          AA      AA          SS  EE          XX      XX  PP          OO      OO     ....
PP          AA      AA  SSSSSSSS    EEEEEEEEEE  XX      XX  PP            OOOOOO       ....
PP          AA      AA  SSSSSSSS    EEEEEEEEEE  XX      XX  PP            OOOOOO       ....

LL              IIIIII      SSSSSSSS
LL              IIIIII      SSSSSSSS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II        SSSSSS
LL                II        SSSSSS
LL                II              SS
LL                II              SS
LL                II              SS
LL                II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

PA
1-

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```
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```

```
0000            .TITLE  PAS$EXPO - Return binary exponent of floating values
0000            .IDENT  /1-001/                 ; File: PASEXPO.MAR Edit: SBL1001
0000
0000    ;
0000    ;****************************************************************************
0000    ;*                                                                          *
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0000    ;*                                                                          *
0000    ;*                                                                          *
0000    ;****************************************************************************
0000    ;
0000
0000    ;++
0000    ; FACILITY: Pascal Language Support
0000    ;
0000    ; ABSTRACT:
0000    ;
0000    ;       This module contains four routines which return the binary exponent
0000    ;       of a floating value for each of the four floating data types.
0000    ;
0000    ; ENVIRONMENT: Runs at any access mode, AST Reentrant
0000    ;
0000    ; AUTHOR: Steven B. Lionel, CREATION DATE: 4-Nov-1980
0000    ;
0000    ; MODIFIED BY:
0000    ;
0000    ; 1-001 - Original. SBL 4-Nov-1980
0000    ;--
```

```
    0000              .SBTTL  DECLARATIONS
    0000        ;
    0000        ; LIBRARY MACRO CALLS:
    0000        ;
    0000        ;       NONE
    0000        ;
    0000        ; EXTERNAL DECLARATIONS:
    0000        ;
    0000              .DSABL  GBL               ; Force all external symbols to be declared
    0000        ;     NONE
    0000        ;
    0000        ; MACROS:
    0000        ;
    0000        ;       NONE
    0000        ;
    0000        ; EQUATED SYMBOLS:
    0000        ;
    0000        ;       NONE
    0000        ;
    0000        ; OWN STORAGE:
    0000        ;
    0000        ;       NONE
    0000        ;
    0000        ; PSECT DECLARATIONS:
    0000        ;
00000000              .PSECT _PAS$CODE PIC, USR, CON, REL, LCL, SHR, -
    0000                              EXE, RD, NOWRT, LONG
    0000
```

```
                           0000          .SBTTL  PAS$EXPO_F - Return binary exponent of F_floating
                           0000  ;++
                           0000  ; FUNCTIONAL DESCRIPTION:
                           0000  ;
                           0000  ;       This routine returns the unbiased binary exponent of an F_floating value.
                           0000  ;
                           0000  ; CALLING SEQUENCE:
                           0000  ;
                           0000  ;       Result.wl.v = PAS$EXPO_F (Single.rf.r)
                           0000  ;
                           0000  ; FORMAL PARAMETERS:
                           0000  ;
                           0000  ;       Single  - F_floating argument
                           0000  ;
                           0000  ; IMPLICIT INPUTS:
                           0000  ;
                           0000  ;       NONE
                           0000  ;
                           0000  ; IMPLICIT OUTPUTS:
                           0000  ;
                           0000  ;       NONE
                           0000  ;
                           0000  ; ROUTINE VALUE:
                           0000  ;
                           0000  ;       The unbiased binary exponent of the argument
                           0000  ;
                           0000  ; SIDE EFFECTS:
                           0000  ;
                           0000  ;       SS$_ROPRAND - if the argument is a reserved operand
                           0000  ;
                           0000  ;--
                           0000
                     0000  0000          .ENTRY  PAS$EXPO_F, ^M<>        ; Entry point
                           0002
             04 BC    53   0002          TSTF    @4(AP)                  ; Test for reserved operand
 50    04 BC    08    07   EF   0005     EXTZV   #7, #8, @4(AP), R0      ; Fetch exponent
    50    00000080 8F      C2   000B     SUBL2   #128, R0                ; Unbias exponent
                      04   0012          RET                             ; End of routine PAS$EXPO_F
```

```
                                 0013          .SBTTL  PAS$EXPO_D - Return binary exponent of D_floating
                                 0013  ;++
                                 0013  ; FUNCTIONAL DESCRIPTION:
                                 0013  ;
                                 0013  ;       This routine returns the unbiased binary exponent of a D_floating value.
                                 0013  ;
                                 0013  ; CALLING SEQUENCE:
                                 0013  ;
                                 0013  ;       Result.wl.v = PAS$EXPO_D (Double.rd.r)
                                 0013  ;
                                 0013  ; FORMAL PARAMETERS:
                                 0013  ;
                                 0013  ;       Double  - D_floating argument
                                 0013  ;
                                 0013  ; IMPLICIT INPUTS:
                                 0013  ;
                                 0013  ;       NONE
                                 0013  ;
                                 0013  ; IMPLICIT OUTPUTS:
                                 0013  ;
                                 0013  ;       NONE
                                 0013  ;
                                 0013  ; ROUTINE VALUE:
                                 0013  ;
                                 0013  ;       The unbiased binary exponent of the argument
                                 0013  ;
                                 0013  ; SIDE EFFECTS:
                                 0013  ;
                                 0013  ;       SS$_ROPRAND - if the argument is a reserved operand
                                 0013  ;
                                 0013  ;--
                                 0013
                           0000  0013          .ENTRY  PAS$EXPO_D, ^M<>        ; Entry point
                                 0015
                 04 BC     73    0015          TSTD    @4(AP)                  ; Test for reserved operand
  50    04 BC    08   07   EF    0018          EXTZV   #7, #8, @4(AP), R0      ; Fetch exponent
     50    00000080 8F     C2    001E          SUBL2   #128, R0                ; Unbias exponent
                           04    0025          RET                             ; End of routine PAS$EXPO_D
```

```
                            0026         .SBTTL  PAS$EXPO_G - Return binary exponent of G_floating
                            0026  ;++
                            0026  ; FUNCTIONAL DESCRIPTION:
                            0026  ;
                            0026  ;      This routine returns the unbiased binary exponent of a G_floating value.
                            0026  ;
                            0026  ; CALLING SEQUENCE:
                            0026  ;
                            0026  ;      Result.wl.v = PAS$EXPO_G (Double.rg.r)
                            0026  ;
                            0026  ; FORMAL PARAMETERS:
                            0026  ;
                            0026  ;      Double  - G_floating argument
                            0026  ;
                            0026  ; IMPLICIT INPUTS:
                            0026  ;
                            0026  ;      NONE
                            0026  ;
                            0026  ; IMPLICIT OUTPUTS:
                            0026  ;
                            0026  ;      NONE
                            0026  ;
                            0026  ; ROUTINE VALUE:
                            0026  ;
                            0026  ;      The unbiased binary exponent of the argument
                            0026  ;
                            0026  ; SIDE EFFECTS:
                            0026  ;
                            0026  ;      SS$_ROPRAND - if the argument is a reserved operand
                            0026  ;
                            0026  ;--
                            0026
                      0000  0026         .ENTRY  PAS$EXPO_G, ^M<>           ; Entry point
                            0028
             04 BC 53FD     0028         TSTG    @4(AP)                     ; Test for reserved operand
   50    04 BC   0B   04   EF  002C      EXTZV   #4, #11, @4(AP), R0        ; Fetch exponent
      50   00000400 8F   C2  0032        SUBL2   #1024, R0                  ; Unbias exponent
                     04     0039         RET                                ; End of routine PAS$EXPO_G
```

```
                               003A          .SBTTL  PAS$EXPO_H - Return binary exponent of H_floating
                               003A   ;++
                               003A   ; FUNCTIONAL DESCRIPTION:
                               003A   ;
                               003A   ;       This routine returns the unbiased binary exponent of an H_floating value.
                               003A   ;
                               003A   ; CALLING SEQUENCE:
                               003A   ;
                               003A   ;       Result.wl.v = PAS$EXPO_H (Quad.rh.r)
                               003A   ;
                               003A   ; FORMAL PARAMETERS:
                               003A   ;
                               003A   ;       Quad    - H_floating argument
                               003A   ;
                               003A   ; IMPLICIT INPUTS:
                               003A   ;
                               003A   ;       NONE
                               003A   ;
                               003A   ; IMPLICIT OUTPUTS:
                               003A   ;
                               003A   ;       NONE
                               003A   ;
                               003A   ; ROUTINE VALUE:
                               003A   ;
                               003A   ;       The unbiased binary exponent of the argument
                               003A   ;
                               003A   ; SIDE EFFECTS:
                               003A   ;
                               003A   ;       SS$_ROPRAND - if the argument is a reserved operand
                               003A   ;
                               003A   ;--
                               003A
                         0000  003A          .ENTRY  PAS$EXPO_H, ^M<>        ; Entry point
                               003C
                   04 BC 73FD  003C          TSTH    @4(AP)                  ; Test for reserved operand
    50   04 BC   0F    00  EF  0040          EXTZV   #0, #15, @4(AP), R0     ; Fetch exponent
         50   00004000 8F  C2  0046          SUBL2   #16384, R0              ; Unbias exponent
                           04  004D          RET                             ; End of routine PAS$EXPO_H
                               004E
                               004E          .END                            ; End of module PAS$EXPO
```

```
PAS$EXPO_D          00000013 RG     01
PAS$EXPO_F          00000000 RG     01
PAS$EXPO_G          00000026 RG     01
PAS$EXPO_H          0000003A RG     01


                                            +-----------------+
                                            ! Psect synopsis !
                                            +-----------------+

PSECT name                      Allocation           PSECT No.  Attributes
----------                      ----------           ---------  ----------
.  ABS  .                       00000000  (     0.)  00 (  0.)  NOPIC   USR   CON   ABS   LCL NOSHR NOEXE NORD   NOWRT NOVEC BYTE
_PAS$CODE                       0000004E  (    78.)  01 (  1.)    PIC   USR   CON   REL   LCL   SHR   EXE   RD   NOWRT NOVEC LONG

                                         +------------------------+
                                         ! Performance indicators !
                                         +------------------------+

Phase                    Page faults    CPU Time        Elapsed Time
-----                    -----------    --------        ------------
Initialization                    10    00:00:00.09     00:00:00.70
Command processing                74    00:00:00.66     00:00:03.46
Pass 1                            64    00:00:00.50     00:00:01.97
Symbol table sort                  0    00:00:00.00     00:00:00.00
Pass 2                            52    00:00:00.41     00:00:01.92
Symbol table output                2    00:00:00.01     00:00:00.01
Psect synopsis output              2    00:00:00.02     00:00:00.02
Cross-reference output             0    00:00:00.00     00:00:00.00
Assembler run totals             206    00:00:01.70     00:00:08.09

The working set limit was 750 pages.
2491 bytes (5 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 4 non-local and 0 local symbols.
231 source lines were read in Pass 1, producing 19 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

                                         +--------------------------+
                                         ! Macro library statistics !
                                         +--------------------------+

Macro library name                       Macros defined
------------------                       --------------
_$255$DUA28:[SYSLIB]STARLET.MLB;2                     0

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:PASEXPO/OBJ=OBJ$:PASEXPO MSRC$:PASEXPO/UPDATE=(ENH$:PASEXPO)
```

0294 AH-BT13A-SE
VAX/VMS V4.0

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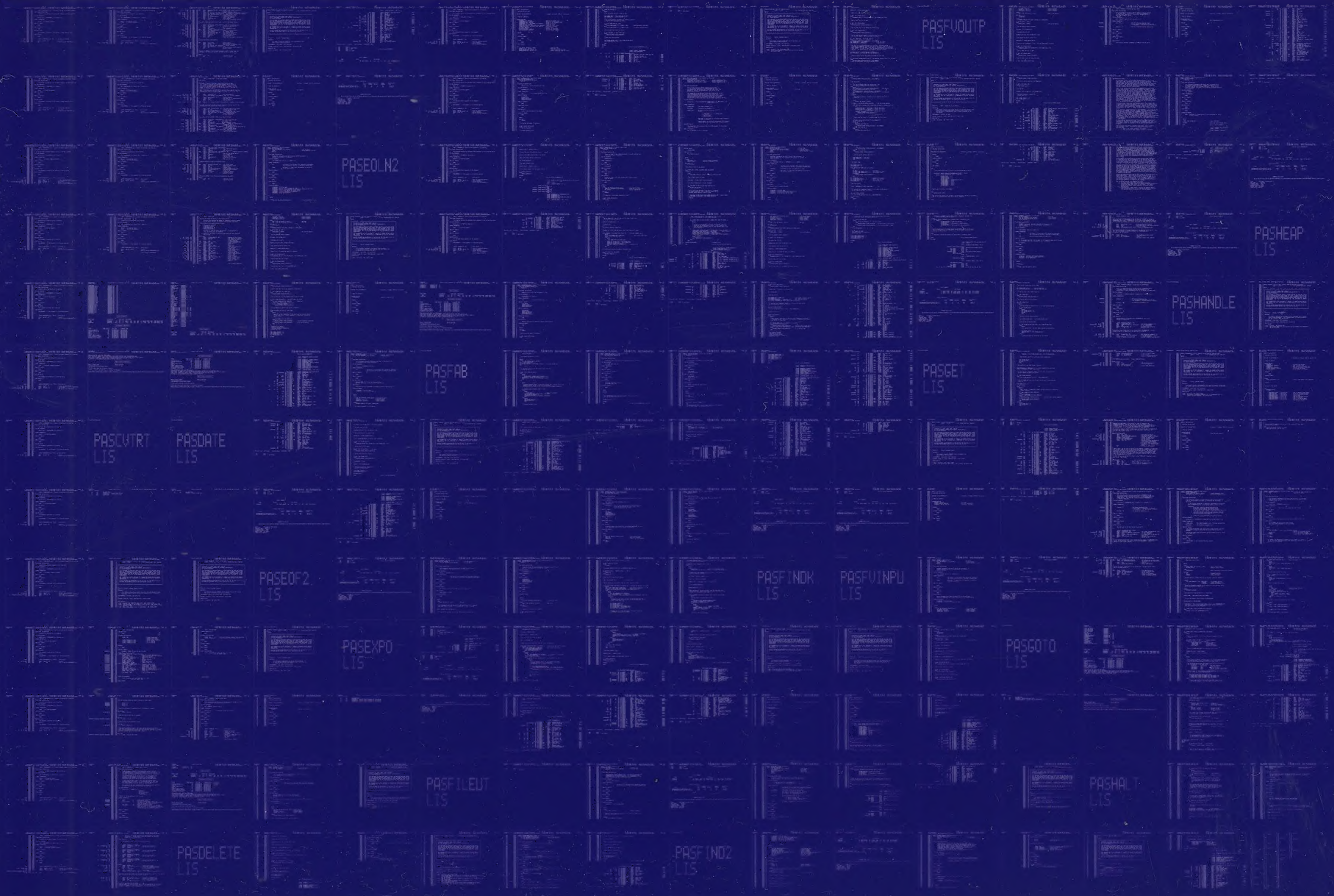

PASFVOUTP
LIS

PASEOLN2
LIS

PASHEAP
LIS

PASHANDLE
LIS

PASFAB
LIS

PASGET
LIS

PASCVTRT
LIS

PASDATE
LIS

PASEOF2
LIS

PASFINDK
LIS

PASFVINPU
LIS

PASEXPO
LIS

PASGOTO
LIS

PASFILEUT
LIS

PASHALT
LIS

PASDELETE
LIS

PASFIND2
LIS